

ABSTRACT OF THE DISCLOSURE

The light diffusing plate includes a lens substrate, a plurality of microlenses disposed on a surface of the lens substrate, a plurality of light exit areas, each having a circular or rectangular form a center of which is coincident with an optical axis of the microlens, and a light shield layer formed on another surface of the lens substrate, and covering other area than the light exit areas. When n and t are a refractive index and a thickness of the lens substrate, respectively, and C (R; diameter, A, B; sides of rectangle) is a size of light exit area, a size of the microlens Sr satisfies the following formula in the light diffusing plate: $Sr \geq 2t \times \tan\theta + C$ (with the proviso that $\theta = \sin^{-1}(1/n)$). Or, a form of the microlens in the light diffusing plate is a part of an ellipsoid shown in the following formula $x^2/a^2 + y^2/a^2 + z^2/c^2 = 1$ (x and y represent axis on the surface of the lens substrate, z represents the optical axis), it's eccentricity ε is shown in the following formula $\epsilon = (c^2 - a^2)^{1/2}/c = 1/n$ and it's far focal point is coincident with a position of the light exit area. The liquid crystal display apparatus and the rear projection apparatus use the light diffusing plate.